

SYSTEM FOR MONITORING WATER WITHIN A BATHTUB

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention:

[0002] This invention relates to a system that monitors the temperature and water level within a bathtub and notifying a user when a predetermined water level and/or predetermined temperature of the water are reached.

[0003] 2. General Background and State of the Art:

[0004] Many devices have been devised to indicate to the user the water temperature and water level within a bathtub. When the water temperature reaches a certain temperature, a device may sound an alarm so that water does not get too hot to burn a toddler, for example. A device may sound an alarm if the water level within the bathtub reaches a critical level where the water may overflow. When the alarm is sound, however, it is competing with the noise of the running water such that the alarm may not be heard by the user. Alternatively, the user may be away from the bathtub such that the sound of the alarm may not be heard. In such instances, the bathwater may still overflow from the bathtub or temperature of the water may rise above the desire water temperature. Accordingly, there still is a need for notifying a user of the water temperature and the water level within a bathtub.

INVENTION SUMMARY

[0005] This invention is directed to a system that monitors the water within a bathtub such as temperature and/or the water level within the bathtub. When the water temperature and/or the water level reaches a certain level, the system sounds an alarm to indicate to the user that the water temperature or the water level have reached a predetermined level within the bathtub. The system includes a housing with a water sensor that is adjustable along the vertical axis so that a user may adjust the depth to which the water sensor may be placed into the bathtub. The housing may also have a temperature sensor to detect the temperature of the water within the bathtub. As the water temperature and/or water level within the bathtub reaches a predetermined level, the system may sound an alarm. When the alarm is activated, the system may send a signal through a transmitter that is received by a receiver that is remote from the transmitter. The receiver may be carried by a user or near a user so that the user may be notified of the alarm even if the user is away from the bathtub. In addition, the background noise of the running water into the bathtub does not hinder the user from being notified of the alarm. The receiver may be communicably coupled to a vibrator and

carried by the user so that even if the user is hearing-impaired, the vibration of the receiver may notify the user of the alarm. Additionally, the receiver may be communicably coupled to a light source to flash the light on and off to indicate to the user that the alarm has been sound. The system may also include a display device that indicates the water temperature of the bathtub. The system may also have support for holding bath supplies such as soap, shampoo and the like, on the outside of the bathtub.

[0006] Other systems, methods, features and advantages of the invention will be or will become apparent to one with skill in the art upon examination of the following figures and detailed description. It is intended that all such additional systems, methods, features and advantages be included within this description, be within the scope of the invention, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The invention can be better understood with reference to the following figures. The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the invention. Moreover, in the figures, like reference numerals designate corresponding parts throughout the different views.

[0008] Fig. 1 is a perspective view of a system capable of monitoring water in a bathtub.

[0009] Fig. 2 is an enlarge view of the system.

[0010] Fig. 3 is a cross-sectional view of a housing.

[0011] Fig. 4 illustrates a receiver incorporated into a light system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] Figure 1 illustrates a perspective view of a system 10 including a housing 11 and a receiver 13 adapted to receive a signal provided from the housing 11. The housing may have an inverted U-shape configuration adapted associate or placed over a rim 27 of a bathtub 15. Figure 2 illustrates that the housing 11 includes an inner-leg 12 and an outer-leg 14, with a base 14 between the two legs. The housing 11 may rest on the rim 27 of the bathtub so that the inner-leg 12 may be placed inside of the bathtub and the outer-leg 14 may be placed outside of the bathtub, with the base 14 sitting on top of the rim 17 of the bathtub. The system 10 may include a water sensor 16 and a water temperature sensor 18. The water sensor 16 may be adjustably coupled to the housing 11 so that a user may adjust the location of the water sensor 16 along the vertical axis. As indicated by the direction arrow 20, the water level sensor 16 may be adjusted along the vertical axis so that a user may adjust the depth of the water sensor 16 into the bathtub to detect the water once the water

reaches a predetermined depth. The housing 11 may be adjustably coupled to a tube 17, where one end of the tube 17 may be inserted and extended from the housing. The free end of the tube 17 may be coupled to the water sensor 16 so that position of the water sensor may be adjusted along the vertical axis.

[0013] Figure 3 illustrates a cross-sectional view of the housing 11. The temperature sensor 18 may be coupled to the housing to detect the temperature of the water within the bathtub. The temperature sensor 18 may be a thermal couple, for example. The temperature sensor 18 may extend from the tube 17. The temperature sensor 18 and the water sensor 16 may be coupled to their respective wires 29 to provide the sensing information to a circuit 19 within the housing. The circuit 19 may display the information corresponding to the temperature sensor 18 and the water sensor 16 to display 22 such as a LCD on the base 14 to display the temperature of the water in the bathtub or whether water level has reached the predetermined level or not. The circuit may be communicably coupled to a speaker 21 that sounds an alarm when the temperature of the water or the water level reaches a predetermined setting. The desired temperature of the water may be set through input buttons 23 (FIG. 2) with the display 22 indicating the set or predetermined temperature.

[0014] The system 10 may also include a transmitter 25 embedded into the base 14 of the housing 11 adapted to communicate with the receiver. When the alarm is activated, the circuit 19 may send an alarm signal through the transmitter 25 which is received by the receiver 13. The alarm signal may be sent wirelessly. The receiver 13 may be a variety of devices adapted to notify its user that the alarm signal has been received. The receiver 13, for example, may be a pager, mobile phone, or home phone. The pager, for example, may beep or vibrate to alert its user that the alarm signal has been sent. In the vibration mode, the pager may notify the user even with the background noise of the running water into the bathtub, if the user is away from the bathtub or is hearing-impaired.

[0015] As illustrated in Figure 4, the receiver 13 may be incorporated into a light system 30 within a home. The receiver 13 may be communicably coupled to the control switch 32 providing power to the light system 30. As the receiver receives the signal from the transmitter 25, the receiver may cause the control switch 32 to turn on and off the power to the light 34 to notify the user of the signal being activated. As such, the receiver may be incorporated into a variety of mobile devices to notify a user through sound, vibration, light, or any other means to indicate that the alarm has been sound. In addition, the system 10 may be used to monitor any type of liquid in a container and to notify the user of liquid temperature and its level within the container.

[0016] The housing 11 may have a suction-cup 24 within the inner-leg 12 to couple the housing 11 to the bathtub 15. The outer-leg 14 may have pockets 26 to hold shampoo, conditioner, and soap and the like. The inner leg 12 may also be also formed to have a dish configured to hold soap and the like.

[0017] While various embodiments of the invention have been described, it will be apparent to those of ordinary skill in the art that many more embodiments and implementations are possible within the scope of this invention. Accordingly, the invention is not to be restricted except in light of the attached claims and their equivalents.